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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/718,374	11/24/2000	Yiqing S. Liang	258/160	3681

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WHITE & CASE LLP
PATENT DEPARTMENT
1155 AVENUE OF THE AMERICAS
NEW YORK, NY 10036

[REDACTED] EXAMINER

AZARIAN, SEYED H

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

2625
DATE MAILED: 04/11/2003

16

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/718,374	LIANG ET AL.	
	Examiner	Art Unit	
	Seyed Azarian	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 29 January 2003.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-38 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 6-9, 30 and 36-38 is/are allowed.
- 6) Claim(s) 1-5, 10-29 and 31-35 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on 24 November 2002 is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ |

FINAL ACTION

RESPONSE TO AMENDMENT

1. Applicant's amendment filed, January 29, 2003, has been entered and made of record.
2. Applicants' arguments with regards to Claims 1-5, 10-29 and 31-35, have been fully considered but they are not persuasive.

Applicant argues in essence that Maki does not teach "characterize activity of said object of interest based on changes in position and shape over time such as eating, running and sleeping". With respect to applicant's argument the Examiner disagrees and indicates refer to column 24, line 63 through column 25, line11, described the motion of the object automatically or acquire information on the "position of the object or on the change of the posture", on the basis of the time-series images, and posture information detector 303, tracks the motion of the object automatically according to the position of the feature points.

Furthermore column 32, lines 56-67, refer to target object and configured to determine pixels corresponding, and position and posture of target, and finally column 27, lines 20-31, refer to comparison section then evaluates the various postures according to the similarity of the generated images to the image of the target object and estimates the posture on the basis of the evaluation.

Claim Rejections - 35 U.S.C. § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-5, 10-29 and 31-35, are rejected under 35 U.S.C. 103(a) as being unpatentable over Maki et al (U.S.6,072,903) in view of Hsieh (U.S.5,546,439).

Regarding claim 1, Maki et al discloses a system, comprising a computer configured to determine a position and shape of an object of interest from video images and characterize activity of said object of interest based on analysis of changes in said position and said shape over time, wherein said object of interest includes eating jumping, running, (see column 15, lines 49-57, refer to detecting information about position, shape and posture of object, also column 32, lines 56-67, refer to target object and configured to determine pixels corresponding, and position and posture of target column 24, line 63 through column 25, line 11, described the motion of the object automatically or acquire information on the “position of the object or on the change of the posture”, on the basis of the time-series images, and posture information detector 303, tracks the motion of the object automatically according to the position of the feature points).

However Maki et al does not explicitly state " computer configured ". On the other hand Hsieh, teaches (column 6, lines 58-67, the "computer configured to identify, for an object of interest").

Therefore it would have been obvious to a person of ordinary skill in the art at time the invention was made, to modify Maki et al invention according to the teachings of Hsieh because it is processing part of computer or information detecting unit that enable to identify object of interest which fully satisfies the requirements of claim.

Regarding claim 2, Maki et al discloses the system of claim 1, further comprising: a video camera coupled to said computer for providing said video images, (see column 23, line 64 throw column 24, line 7, tracking of motion picture, by use of television camera).

Regarding claim 3, Maki et al disclose the system of claim 2, further comprising: a video digitization unit couple to said video camera and said computer for converting said video images provided by said video camera from analog to digital format, (see above claims and column 8, lines 46-51, refer to using a digital filter).

Regarding claim 4, Maki et al discloses the system of claim 3, further comprising: a storage/retrieval unit coupled to said video digitization unit, said video camera, and said computer, for storing said video images and standard object video images, (see column 25, lines 32-37, refer to storage section).

Regarding claim 5, Maki et al discloses the system of claim 1, wherein said computer includes an object identification and segregation module receiving said video images, (see column 29, lines 23-28, refer to receiving three-dimensional position information).

Regarding claim 13, Maki et al disclose the system of claim 1, wherein said object is a mouse, (see column 2, lines 20-26 refer to three dimensional mouse).

Regarding claim 16, Maki et al discloses a method of determining and characterizing activity of an object using computer processing and identifying and classifying the changes, (see

column 3, lines 15-22, refer to changes of image in different time, and also column 27, lines 20-31, refer to comparison and synthesizing the images).

Regarding claim 19, Maki et al discloses the method of claim 18, wherein said step of generating a background image includes the step of determining variation in intensity of pixels within said individual frames to identify a region where said foreground object is located, (see column 19, lines 44-52, corresponding to pixel and intensity of the light).

Regarding claim 26, Maki et al discloses the method of claim 24, wherein said step of identifying and classifying changes to said foreground object uses contour-based shape information selected from the group consisting of b-spline representation, convex hull representation, and corner point, (see column 9, lines 14-23, refer to connected feature points, such as outer corner of the eye).

Regarding claim 27, Maki et al discloses the method of claim 24, wherein said step of identifying and classifying changes to said foreground object includes identifying a set of model postures and their description information, said set of model postures including horizontal posture, vertical posture, eating posture, or sleeping posture, (see column 25, lines 6-11, refer to posture information).

With regard to claims 10-15, 17-18, 20-25, 28-29 and 31-33, the arguments analogous to those presented for claims above are applicable.

5. Claims 34-35, are rejected under 35 U.S.C. 103(a) as being unpatentable over as applied to claim above, and further in view of Smith et al (U.S.5,870,138).

Regarding claim 34, Maki et al discloses the method of claim 33, wherein said temporal analysis is a time-series analysis such as Hidden Markov Model (HMMs), (see above claims).

However Maki et al and Hsieh does not explicitly state "Hidden Markov Model". On the other hand Smith et al teaches (column 17, lines 41-43, the device can be implemented as a Hidden Markov Model and has two phases of operation, namely training and recall).

Therefore it would have been obvious to a person of ordinary skill in the art at time the invention was made, to modify Maki et al and Hsieh invention according to the teachings of Smith et al because it is device to map the input data (images) from the camera to outputs which represents the probability of the input images belonging to a specified set of expressions, and can easily be implemented in an images device such as video camera.

With regard to claim 35, the arguments analogous to those presented for claim 34, is applicable.

Allowable claims

6. The following is an examiner's statement of reasons for allowance.

The instant invention recites method and system for providing and /or activities of an object using video. Claim 6, representing claims 7-9, 30, and 36-38, are allowable due to the Performing a computer configured to determine a position and shape of an object of interest from video images and characterize activity of said object of interest based on analysis of changes in said position and said shape over time, wherein said computer includes an object identification and segregation module receiving said video images, and wherein said object identification and segregation module receiving said video images and wherein object identification and segregation module operates using a background subtraction algorithm in which a plurality of said video image are grouped into a set, a standard deviation map of the set of video images is created, a bounding box where a variation is greater than a predetermined threshold is removed from said set of video images and set of images less said bounding boxes is averaged to produce a back ground image.

These key features in combination with the other features of the claimed invention are

Neither taught nor suggested by the art of record.

7. Thus, claims 6-9, 30 and 36-38, are allowed.

Conclusion

8. **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (703) 306-5907. The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached at (703) 308-5246.

Any response to this action should be mailed to:

Assistant Commissioner for Patents

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Washington, D.C. 20231

Or faxed to:

(703) 872-9314, (*informal* or *draft* communications, should be clearly labeled to expedite delivery to examiner).

Hand delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to T.C. customer service office whose telephone number is (703) 306-0377.

Seyed Azarian

Patent Examiner

Group Art Unit 2625

April 9, 2003



Jayanti K. Patel
Primary Examiner